

REMARKS

Reexamination and reconsideration of this application is requested. Claims 1, 7, and 13 have been amended, and new claim 22 has been added. After this Response With Amendment, Claims 1-13, and 15-22 remain pending in this application. No new matter was added.

Response To Arguments Section

The Examiner stated the following in the Response To Arguments Section of the present Office Action:

It is noted that Applicant has amended the claims substantially. However, certain concepts should further be elaborated on.

First, how the "policy definition programmatically specifies relationships by using states..." More specifically, how the states are used to specify the relationships.

Second, how the states are associated with the at least two computing resources. The term "associated" only requires that the states are somehow related to the computing resources, but does not place any specific requirement as to what the relation is.

Third, details on how the "self-discovery" is performed should be included, as "self-discovery" can include any method by which the device or devices performing the method can find the relationships.

Fourth, the implicit relationships that are harvested do not appear to have any functionality within the instant claim. The claim should be amended to demonstrate clearly what functionality the implicit relationships are utilized, and how the implicit relationships are utilized for that functionality.

Fifth, elaboration on how "the desired end state can be reached by applying the at least one policy definition conditioned by the at least one conditional relationship specification" occurs.

The Applicants have amended independent claims 1, 7, and 13 to clarify the first, third, and fourth, suggestions given above by the Examiner. With respect to the Examiner's fifth suggestion, the Applicants also provide below an explanation of how "the desired end state can be reached by applying the at least one policy definition conditioned by the at least one conditional relationship specification".

With respect to the first suggestion given by the Examiner, the Applicants have amended independent claims 1, 7, and 13 to more clearly recite:

and wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;

As can be seen, the states define relationships because the state of one resource is dependent on the state of the other resource. These relationships are programmatically defined by using conditional statements, where the state of one resource is conditionally dependent on the state of the other resource.

With respect the third suggestion given by the Examiner, the Applicants have amended independent claims 1, 7, and 13 to more clearly recite:

wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships;

As can be seen, the self-discovery method includes harvesting the implicit relationships automatically “without the user explicitly specifying the implicit relationships”.

With respect to the fourth suggestion given by the Examiner, the Applicants have amended independent claims 1, 7, and 13 to more clearly recite:

determining, by the autonomic computing system, that a state of at least one resource in the set of resources substantially satisfies a predetermined requirement of the at least one conditional relationship specification and dependencies and requirements of the set of implicit relationships that have been harvested, wherein the set of resources includes any resources identified based on the set of implicit relationships that have been harvested;

As can be seen, independent claims 1, 7, and 13 now more clearly recite how the implicit relationships that have been harvested are utilized.

With respect to the fifth suggestion given by the Examiner, the Applicants provide the following explanation as to how “the desired end state can be reached by applying the at least one policy definition conditioned by the at least one conditional relationship specification”. Independent claims 1, 7, and 13 recite that the:

policy definition programmatically specifies relationships by using states associated with the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;

As can be seen, the policy definition provides a decision sequence that is to be followed to reach the desired end state and that this decision sequence is based on the conditional relationship specification. In other words, the decision sequence is conditioned. Therefore, when a state of at least one resource in the set of resources substantially satisfies a predetermined requirement of the at least one conditional relationship specification the system is able to determine that decision sequence of the policy definition can be satisfied and therefore the desired end state is reachable by the policy definition.

Rejection Under 35 U.S.C. 102 (Eshghi)

The Examiner rejected Claims 1-2, 5-8, and 11-12 under 35 U.S.C. 102(b) as being anticipated by Eshghi U.S. Patent No. 5, 893,083.

Eshghi is directed towards a system and method for the management of services provided by a computer system. Eshghi teaches that an inferencing engine carries out inferencing operations on a declarative model of a service. The inferencing engine uses facts about the system stored in a fact base. A resident goal store contains declarative definitions of goals which concern availability of services and which it is desirable for the system to continue to satisfy. The service model includes definitions of events which can occur in the system and may affect availability of services, and definitions of actions which can be taken to modify the configuration of the system. Eshghi teaches that when an occurrence of an event defined in the service model is reported to the apparatus, the event definition

is used to guide analysis of the event report and appropriate updating of the fact base.

Goals which are linked to the updated facts are then examined to assess whether the goals are still satisfied. If a goal is no longer satisfied the service model is searched for actions which can re-configure the system to enable the goal to be re-satisfied. If a goal involves information about an entity in a part of the system managed by a second, different management apparatus, the second apparatus can be requested to establish a sub-goal concerning the status of that entity. Thereafter, the second apparatus takes appropriate action, autonomously, to keep the sub-goal satisfied, and reports back only if it is unable to satisfy the sub-goal.

With respect to Claim 1, the Examiner states that Eshghi teaches:

wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification (Eshghi: Column 2, lines 53-55. The conditional states indicate a decision sequence, as each step of the conditional statements is a decision.);

The Applicants respectfully point out that Eshghi does not teach or suggest:

wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;

Nowhere does Eshghi teach or suggest that a policy definition programmatically specifies relationships by....indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification. The Examiner argues that the condition states of Eshghi indicate a decision sequence, as each step of the conditional statements is a decision. However, Eshghi is only determining whether a condition is true or false. For example, Eshghi at col. 9, lines 64-67 clearly shows determining **A if B or C**. In other words, Eshghi is merely teaching that A is true if B or C. This in no way is a **decision sequence that is to be followed to reach a desired end state**. These statements of Eshghi do not indicate any sequence that

is to be followed to reach an end state for the autonomic computing system. Accordingly, the presently claimed invention distinguishes over Eshghi for at least these reasons.

The Examiner also states that Eshghi teaches:

harvesting implicit relationships from among the set of resources via a self-discovery, wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources (Eshghi: Column 14, lines 11-15), and wherein the set of implicit relationships are discovered automatically without the user explicitly specifying the implicit relationships (Eshghi: Column 14, lines 11-15);

Column 14, lines 11-15 of Eshghi merely state:

The facts which may be derived from the information available for the event are implicitly identified in section 170 of the event and may be extracted by application of an appropriate parser as described below.

As can be seen, Eshghi only teaches implicitly identifying **facts** that may be extracted by parsing information in section 170 of the event. These facts are therefore part of the program information., which are not the same as relationships. A fact, according to Eshghi, is information such as the existence and status of the print scheduler (See Eshghi at, for example, col. 6, lines 34-36). Accordingly, the presently claimed invention distinguishes over Eshghi for at least these reasons as well.

Independent claim 7 recites similar to independent claim 1, and therefore, the remarks and arguments given above with respect to independent claim 1 are also applicable in support of independent claim 7 and will not be repeated.

With respect to claim 2, the Examiner states that Eshghi teaches:

receiving at least one policy definition (Eshghi: Column 2, lines 29-48. The model is equivalent to the policy definition.) defined by a user (Eshghi: Column 15, lines 32-59. The policy definition is at least in part defined by the users, as it is catered to the requirements of the users.), wherein the at least one policy definition includes at least one conditional

relationship specification (Eshghi: Column 9, lines 56-60), and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system (Eshghi: Column 5, lines 39-45) and defines at least one acceptable sub-state (Eshghi: Column 14, lines 60-54) and at least one desired end state for the automatic computing system (Eshghi: Column 2, lines 53-55);

determining that the desired end state for the autonomic computing system cannot be reached (Eshghi: Column 14, lines 60-64);

determining that the acceptable sub-state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications (Eshghi: Column 14, line 64 to Column 15, line 2); and

placing the autonomic computing system in an acceptable state, wherein the acceptable sub state becomes a new end-state in response to the substitution (Eshghi: Column 14, line 64 to Column 15, line 2).

The Applicants respectfully point out that the goal of Eshghi is not a “desired end state for the autonomic computing system”. The goal in Eshghi taught in the sections cited by the Examiner is a goal for an entity of a service. For example, Eshghi at col. 14, line 64 to col. 15, line 2 is for a print spooler entity. If the goal, i.e., that the default print is enabled, of the print spooler cannot be satisfied, i.e., the default printer is disable, then the default printer can be switched to another printer. Therefore, Eshghi is not “placing the autonomic computing system in the acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution”, but is merely re-satisfying a goal of an entity of a service model, of the entire system. Accordingly, the presently claimed invention distinguishes over Eshghi for at least these reasons.

Independent claim 8 recites similar to independent claim 2, and therefore, the remarks and arguments given above with respect to independent claim 2 are also applicable in support of independent claim 8 and will not be repeated.

With respect to independent claim 7, the Examiner states that independent claim 7 “lists all of the same elements of claim 1...” and applies the supporting rationale of claim 1 to claim 7. However, independent claim 7 includes additional claim elements not found in

claim 1, which the Examiner has failed to give a proper examination. For example, independent claim 7 also recites:

wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the set of resources, wherein the availability of one or more of the top-most level set of resources is dependent on the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources;

Eshghi merely teaches a declarative model that specifies the requirements needing to be met for a service to be available. Nowhere does Eshghi teach or suggest “wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the set of resources, wherein the availability of one or more of the top-most level set of resources is dependent on the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources”. Accordingly, the presently claimed invention distinguishes over Eshghi for at least these reasons as well.

Applicants have also added new claim 22, which recites:

The method of claim 1, further comprising:
 activating the at least one conditional relationship specification when the state of at least one of the at least two resources has been reached; and
 dynamically adjusting the policy definition at runtime based on the at least one conditional relationship specification that has been activated.

Nowhere does Eshghi teach or suggest these claim elements. Accordingly, the presently claimed invention distinguishes over Eshghi for at least these reasons.

Therefore, in view of the foregoing amendments and remarks, the Applicants believe that the rejection of Claims 1-2 and 7-8 under 35 U.S.C. § 102(b) has been overcome. Claims 5-6 and 11-12 depend from Claims 2 and 8, respectively. Since dependent claims include

all of the limitations of their independent claim, claims 5-6 and 11-12, are believed to also recite in allowable form. Accordingly, the Applicants request that the Examiner withdraw the rejection and allow Claims 1-2, 5-8, and 11-12.

Rejections Under 35 U.S.C. 103 (Eshghi in view of Sankaranarayan)

The Examiner rejected Claims 3, 4, 9, and 10 under 35 U.S.C. 103(a) as being unpatentable over Eshghi in view of Sankaranarayan U.S. Pre-Grant Publication No. 2005/0033846.

Sankaranarayan is directed towards a resource management architecture for managing resources in a computer system. The system of Sankaranarayan includes a resource manager and multiple resource providers that support one or more resource consumers such as a system component or application. Each provider is associated with a resource and acts as the manager for the resource when interfacing with the resource manager. The resource manager arbitrates access to the resources provided by the resource providers on behalf of the consumers. A policy manager sets various policies that are used by the resource manager to allocate resources. One policy is a priority-based policy that distinguishes among which applications and/or users have priority over others to use the resources.

Sankaranarayan also teaches that a resource consumer creates an "activity" at the resource manager and builds one or more "configurations" that describe various sets of preferred resources required to perform the activity. Each resource consumer can specify one or more configurations for each activity. If multiple configurations are specified, the resource consumer can rank them according to preference. This allows the resource consumers to be dynamically changed from one configuration to another as operating conditions change.

Claims 3, 4, 9, and 10 depend from claims 2 and 8, respectively. Since Eshghi and Sankaranarayan alone and/or in combination with each other do not teach or suggest the

subject matter of independent claims 2 and 8, claims 3, 4, 9, and 10 also recite in allowable form as well. Accordingly, the Applicants request that the Examiner withdraw the rejection and allow Claims 3, 4, 9, and 10.

Rejections Under 35 U.S.C. 103 (Sankaranarayan in view of Eshghi)

The Examiner rejected Claims 13-21 under 35 U.S.C. 103(a) as being unpatentable over Eshghi in view of Sankaranarayan U.S. Pre-Grant Publication No. 2005/0033846.

Claim 14 was cancelled in the previous Response With Amendment, thereby rendering this rejection of claim 14 moot.

Claim 13 recites similar to claim 1 and claim 18 recites similar to claim 2, which have already been discussed above. Therefore, the remarks and arguments made above with respect to claims 1 and 2 are applicable here and will not be repeated.

Any policy taught in Sankaranarayan that is defined by a user is related to conflict resolution. See for example, paragraph [0083] of Sankaranarayan. Also, Sankaranarayan merely teaches counting the number of resources that are the same. Additionally, Sankaranarayan only teaches that notifications are sent to policies (which are policies for allocating resources such as conflict resolution policies). Accordingly, the teachings of Sankaranarayan do not teach or suggest the presently claimed invention.

Therefore, because Sankaranarayan and Eshghi either alone and/or in combination with each other do not teach or suggest:

An autonomic resource manager for an autonomic computing system, the autonomic resource manager comprising:

memory for storing at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between at least two resources in a set of resources in an autonomic computing system and defines at least one desired end state therefore, and wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two

resources, and wherein the at least one conditional relationship specification comprises at least one conditional statement, wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;

a relationship harvester for harvesting implicit relationships among the set of resources via self-discovery, wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships;

a resource monitor, communicatively coupled with each resource in the autonomic computing system, for monitoring, and communicating data with, each resource in the autonomic computing system;

an equivalency definer, communicatively coupled with each resource in the autonomic computing system, and with the memory, for defining at least one equivalency representing at least one set of equivalent resources in the autonomic computing system, and storing the at least one equivalency in the memory, wherein the equivalency defines the at least one set of equivalent resources that can be substituted for one another in accordance with the at least one policy definition that includes at least one conditional relationship specification to arrive at the desired end state;

a policy generator, communicatively coupled with the resource monitor and the memory, for providing in the memory a representation of a system-wide graph of available actions and at least one of: conditional relationship specifications and alternative relationship specifications, corresponding with resources in the autonomic computing system including any resources identified based on the dependencies and requirements of the set of implicit relationships that have been harvested; and

an automation engine, communicatively coupled with the resource monitor, with at least one resource in the autonomic computing system, and with the memory, for providing available actions as defined by the at least one policy definition to the at least one resource in the autonomic computing system in order for the autonomic computing system to establish and maintain a desired end state.

or

An autonomic computing system, comprising:
distributed resources; and
an autonomic resource manager, communicatively coupled with the distributed resources, for receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system, determining that the desired end state for the autonomic computing system cannot be reached, determining that acceptable sub-state of the desired end state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications, and placing the autonomic computing system in acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution.

Claims 13 and 18 recite in allowable form. Claims 15-17 and 19-21 depend from claims 13 and 18, respectively. Since dependent claims recite the limitations of their independent claims, claims 15-17 and 19-21 also recite in allowable for as well. Accordingly, the Applicants request that the Examiner withdraw the rejection and allow Claims 13, and 15-21.

Conclusion

The foregoing is submitted as a full and complete response to the Official Action mailed March 17, 2009, and it is suggested that claims 1-13 and 15-22 are in condition for allowance. Reconsideration of the rejections is requested. Allowance of claims 1-13 and 15-22 is earnestly solicited.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

Applicants acknowledge the continuing duty of candor and good faith to disclose information known to be material to the examination of this application. In accordance with 37 CFR § 1.56, all such information is dutifully made of record. The foreseeable equivalents of any territory surrendered by amendment are limited to the territory taught by the information of record. No other territory afforded by the doctrine of equivalents is knowingly surrendered and everything else is unforeseeable at the time of this Response by the Applicants and attorneys.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, or that in any way it would help expedite the prosecution of the patent application, a telephone call to the undersigned at (561) 989-9811 is respectfully solicited.

The present application, after entry of this Response With Amendment, comprises twenty-one (21) claims, including six (6) independent claims. Applicants have previously paid for twenty-one (21) claims including six (6) independent claims. Applicants, therefore, believe that an additional fee for claims amendment is currently not due.

The Commissioner is hereby authorized to charge any fees that may be required or credit any overpayment to Deposit Account No. **50-1556**.

In view of the preceding discussion, it is submitted that the claims are in condition for allowance. Reconsideration and re-examination is requested.

Respectfully submitted,

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